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ON THE

COAGULABILITY

OF THE

URINE IN SCARLATINA.

BY

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ON THE COAGULABILITY OF THE URINE IN SCARLATINA.

The invariable presence of albumen in the urine, associated with the œdema or more general dropsy following certain cases of scarlatina, is a circumstance now almost universally acknowledged. From the various and very different statements published in regard to the condition of the urine in this disease, it is, however, difficult to estimate the exact relation in which the dropsy and the presence of albumen in the urine stand to each other. Martin Solon found the urine albuminous in twenty-two out of twenty-three cases of scarlatina. On the other hand, Philipp observed in Berlin, where scarlatina was prevalent, and anasarca could not be warded off, at least sixty cases in which the urine was tested both by heat and nitric acid, and no trace of albumen could be detected. In two cases of scarlatina, treated in Romberg's clinical ward for children, and in which there were no dropsical symptoms, Simon could find no albumen. In the case of a man, aged twenty years, which occurred in Schönlein's clinical wards, the urine was very albuminous during the period of desquamation, and continued so for four days without the occurrence of dropsy; and in another man who had no dropsy, Simon failed to detect any albumen.—(Simon's *Animal Chemistry*, edited by Dr Day, vol. ii. p. 280.) These statements are sufficient to show how easily a difference of opinion may exist on a subject, the facts recorded in regard to which are so very different. Simon remarks, the observations regarding the presence of albumen in the urine during the period of desquamation after scarlatina are so contradictory, that it has become a matter of very great interest to settle these conflicting statements by further researches.

Being led from various circumstances to take an interest in the question of the coagulability of the urine in this disease, I proceeded to the careful examination of the urine in every case of scarlatina which presented itself to my notice, whether occurring in hospital, or submitted to me for examination through the kindness of friends. In this way I have conducted the examination of a large number of specimens of scarlatina urine, whether the disease became afterwards complicated with dropsy or not. In what I have now to state in regard to these, I wish to be understood as referring to twenty-one cases of simple scarlatina, not followed by dropsy. These cases must not, however, be considered as selected; they were, on the contrary, recorded in the exact order in which they occurred. I might have added others, and some bearing with equal force on the truth of the fact I am now desirous to advocate; but of others, the notes I possess are not sufficiently accurate, chiefly on account of my not having been able to examine the urine as often as in an investigation of this kind is desirable.

In all these cases albumen manifested itself in the urine, as recognised by the application of heat, or the addition of nitric acid. With two exceptions, the period of the disease at which the albumen appeared was a few days after the commencement of desquamation. In a few the process of desquamation had being going on for several days, and in one case was almost completed before the albumen appeared.

In the two instances noted as exceptions, albumen appeared in the urine from the first examination during the state of fever, and, while the eruption was present, in both cases brilliant. Its presence was satisfactorily explained by microscopic examination; in the one there existed blood, though not in such amount as to colour the urine, or indicate its presence by simple ocular inspection. The amount of albumen present in the urine was very small, and daily examination detected its regular decrease, till about the fifth day of desquamation, when its amount became much more appreciable, and continued so for some time. But the microscope ever after failed to detect any blood globules in that urine.

In the other case of exception, the early presence of the albumen was found to depend on the existence of pus. Though the changes noted in the former case were not so well marked in this, nevertheless a very decided increase in the quantity of albumen occurred during the progress of desquamation; and though the albumen continued to manifest its presence, the pus corpuscles shortly afterwards disappeared. An interesting circumstance in connexion with this case, was the existence of suppuration of both tonsils while pus occurred in the urine; and careful examination showed its presence to be unconnected with any disease of the external organs; evidences of the same action at work in different parts of the system in the same disease.

In regard to the duration of the albumen in the urine in these cases, the shortest period it continued was forty-eight hours, and excluding the two cases mentioned as having the albumen manifested from a very early day of the disease, the longest period during which I noticed it was ten days. The usual duration was four, five, and ~~continues~~ six days. When the albumen once manifested itself, Con it continued to appear, or rather when, after having been observed, a future examination failed to detect it, I always found it a final disappearance—it never reappeared. The amount of albumen present in these cases was not very various; it was in general present in such quantity as to allow of the urine being called moderately coagulable. I never found the urine of simple scarlatina highly coagulable; in several cases, especially in those where the albumen appeared for the first time at a late period of the disease, it was only faintly coagulable.

The albumen, I think, will be found to appear earliest in cases most severe, and in these continue longest; and, on the other hand, its appearance will be retarded in less severe cases, and its existence be less obvious and more transient. Of these points I am not however quite certain.

From what has been stated in regard to the appearance, continuance, and amount of the albumen in this urine, it will be seen that a careful examination is at all times required for its detection. From the fact, especially of its continuance being limited, often almost transient, I believe that its presence in many cases may be overlooked. All of the urines of which I have spoken, were submitted to daily, some even to more frequent, examination; this I conceive being the only satisfactory way of determining the question.

I believe, then, that if careful examination of the urine be instituted, albumen in small amount will be found to exist in every case of scarlatina; the period of its first manifestation will generally be a few days after the commencement of desquamation, its continuance will almost always be limited to a few days, and its amount will generally be small.

Independent of the larger amount of albumen usually found in the urine, of the anasarca after scarlatina, there exists a much more valuable and invariable distinction in the amount of urine voided; this, in the case of dropsy, is always small, sometimes the secretion is almost entirely suppressed; on the other hand, I have never found the urine of the simple scarlatina, though containing albumen, to be diminished in quantity. Whenever the quantity begins to fail, dropsy may be apprehended.

For the detection of the albumen in the urine of scarlatina, it is necessary to employ both of the usual tests, the application of heat and the addition of a few drops of nitric acid. No appearance in the urine of desquamation is more common, than that of phosphates deposited by heat; and I have frequently found that the disappearance of the albumen has been followed by the presence of phosphates.

While the albumen continues in the urine, the density usually remains good, even high, 1·020 to 1·028 being the standard I have generally found. As desquamation proceeds, and the albumen disappears, the density falls; but I seldom found it very low. It was usually lowest when the albumen became replaced by the phosphates.

Frequently the albumen in the urine was accompanied by a deposit of amorphous urates; and in one case by crystals of oxalate of lime.

By the microscope, I have never failed to detect the moulds or casts of the tubes of the kidney in the urine of the dropsical cases, associated usually with a dense deposit of epithelium. On the other hand, I have never observed these casts in the albuminous urine of the simple scarlatina.

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